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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/501,622	02/09/2000	Randell L. Mills	8ac4-D2	4146
20736	7590	01/26/2005	EXAMINER	
MANELLI DENISON & SELTER 2000 M STREET NW SUITE 700 WASHINGTON, DC 20036-3307			KALAFUT, STEPHEN J	
		ART UNIT	PAPER NUMBER	
		1745		

DATE MAILED: 01/26/2005

12  
Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/501,622	MILLS, RANDELL L.
	Examiner Stephen J. Kalafut	Art Unit 1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 2/25/2002, 4/8/2002, 4/15/02 and 5/13/02.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-265 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-265 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date (4 dates).

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)

6) Other: Attachment and Appendix.

Claims 1-265, for reasons of record, are rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility. See paper no. 4, pages 2-4.

Claims 1-265 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. See paper no. 4, pages 4-9.

Applicant's arguments filed 3/25/2002 have been fully considered but they are not persuasive.

Regarding applicant's arguments, please see the enclosed "Attachment To Response To Applicant's Arguments".

Applicant that various observations, as shown by the papers attached to the response of 3/25/2002, give support for his contention that hydrogen can exist in states lower than the "ground state", where the electron of the hydrogen has a principle quantum number which is fractional, rather than an integer. The attachments have been noted, but are not considered persuasive, for the following reasons:

- 1) They have not been peer reviewed, or published, but only submitted, so they do not (yet) have the credibility that peer reviewed articles have. To this category belong attachments 6, 10, 21, 70-86 and 92. To this category also belongs applicant's book *The Grand Unified Theory Of Classical Quantum Mechanics*.

2) They recite only the theory behind applicant's invention, and while referring to other articles (mostly by applicant), do not contain data themselves. To this category belong attachments 4, 5, 23, 92, 93 and 96.

3) They do not deal with the "hydrino", but other subject matter, such as electrons in superfluid helium, and thus, even if valid, do not pertain to the present invention. To this category belong attachments 9, 17, 24, 59-61 and 95.

4) They contain data which cannot be accounted for by applicant's theory. Applicant takes the known formula for energy states for a hydrogen atom,  $E = -13.6 / n^2$  eV, where  $n$  is the principal quantum number, and for this number uses fractions, where  $n = 1/p$ , where  $p$  is an integer, and  $E$  is the binding energy of the electron. Thus, the formula becomes  $E = -13.6 / (1/p)^2$  eV. When  $p=1$ , the hydrogen is in its "ground state". Then  $p$  is 2 or more, hydrogen is allegedly in an energy state below the "ground state", such a hydrogen atom being called a "hydrino". By setting  $p$  equal to the integers, the predicted energy values would be -13.6 (1) eV, -13.6 (4) eV, -13.6 (9) eV, -13.6 (16) eV and -13.6 (25) eV. Applicant expresses these values in terms of a variable called  $q$ , so that for these five energy levels,  $q$  equals 1, 4, 9, 16 and 25. The differences between one level, corresponding to a given value of  $p$ , and the next level, may be expressed as  $q$  equaling 3, 5, 7 and 9. Higher values of  $p$  would lead to further higher odd values of  $q$  (11, 13, etc.). The differences between two energy levels, corresponding to a difference in  $p$  of 2, may be expressed as  $q$  equaling 8, 12 and 16. A value 4 would be possible, going from  $p$  being zero, which would represent an unbound electron ( $n = \infty$ ), to  $p$  being 2. Thus, applicant's formula predicts emissions of energy corresponding to values of  $q$  equaling 1, 3, 4, 5, 7, 8, 9, 11, 12, 13, 15 and 16. Applicant's data, however, shows  $q$  equaling 1, 2, 3, 4, 6, 7, 8, 9 or 11.

Looking at theoretical values of  $q$  up to 11, the data shows  $q$  equaling 2 and 6, which are precluded by applicant's formula, while omitting the predicted value of 5. It is noted that applicant makes numerous references to  $q$  equaling 2 (corresponding to a value of 27.2 eV), a value which nowhere fits into his formula. To this category belong attachments 3, 81-84 and 89.

5) They speculate hydrino formation as an explanation for experimental data unrelated to and not necessarily caused by hydrinos, such as Balmer line broadening, calorimetric data, or unfounded "indications" of chemical bonding. See the enclosed "Appendix", page 5, for alternate explanations consistent with conventional science. To this category belong attachments 1, 2, 7, 13, 18-22, 25-28 and 71-87.

6) They speculate the presence of hydrinos as an explanation for an observed "anomalous discharge" or "afterglow", which occurs after the source of heat to a dissociator (a catalyst which enables the  $H_2$  molecule to dissociate into monatomic hydrogen) is turned off. This "afterglow" can be explained by ordinary thermodynamics. Elemental hydrogen occurs naturally as the diatomic  $H_2$  molecule. Separating its two atoms requires an energy input. The reverse reaction, where hydrogen atoms recombine into the diatomic molecule, releases energy. When the dissociator is heated, some of the  $H_2$  molecules are split into hydrogen atoms, and equilibrium is established between the two atoms of hydrogen. When the heat input is removed, the hydrogen seeks the lower of the two energy states, and recombines into the diatomic molecule. This process would give off energy, and thus produce the observed "afterglow", which disappears when the recombination is complete. For the sake of argument, assuming hydrinos could be formed, doing so would, according to applicant, release energy. Thus, the reverse process, in which hydrinos change into ordinary hydrogen atoms, would absorb energy. The idea that an

“afterglow”, which is a *release* of energy, being caused by lingering hydrinos changing back into ordinary hydrogen, which would *absorb* energy, is thus internally contradictory. To this category belong attachments 6, 10, 13, 14 and 85.

- 7) They contain misidentifications of spectral lines, as explained on page 3 of the enclosed “Appendix”. To this category belong attachments 3, 11, 12, 15, 70, 85 and 88-90.
- 8) They contain what applicant claims to be replications of his work, but do not necessarily agree with his conclusions, at best saying the results are “consistent with” his theory. To this category belong attachments 29, 30 and 33-51.
- 9) They are unrelated to the scientific merits of the present invention, and only generally relate to court cases, to news stories about the PTO and applicant’s related inventions, communications between applicant and the PTO, overviews of applicant’s company, conference proceedings, and biographies of applicant’s employees. To this category belong attachments 8, 31, 32, 52-58, 62, 63, 66, 67, 69, 91, 94 and 97.

Since all of the “evidence” presented in attachments 50-101 belongs to at least one of the categories (1) to (9) above, they are all deemed incredible, and hence, invalid as experimental proof for the existence of the hypothetical hydrino, or for any doped semiconductor based thereon, or any method of making such a semiconductor.

Further indication that applicant’s theory is flawed is provided in the enclosed “Appendix”, starting at the bottom of page 5. Applicant, in his book, *The Grand Unified Theory of Classical Quantum Mechanics*, has misunderstood that all stationary atomic states are non-radiative, why excited state radiate while the ground state does not, the fundamentals of quantum theory, Haus’s non-radiative condition, the distinction between the quantum mechanics

eigenfunction and wave function, the uncertainty principle, the concept of spin (which is a property of an electron *per se*, and not of its motion around the nucleus), the hydrogen electron wave function, and relativistic length contraction (also called Laurence contraction).

Applicant's IDS submissions of 3/25/2002, 4/8/2002, 4/15/2002 and 5/13/2002 are acknowledged, to the extent that the references cited thereon have been found.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Kalafut whose telephone number is 571-272-1286. The examiner can normally be reached on Mon-Fri 8:00 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sjk



STEPHEN KALAFUT  
PRIMARY EXAMINER  
GRCP (170)